

REVISED 01/09

LSUE COURSE SYLLABUS

I.	Chemistry 2361/2362	Instructor: Chemistry Faculty
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II.	Course description from the current LSUE catalog:
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Organic Chemistry Laboratory. Lab. 3; Cr. 1. each semester

Fundamental laboratory operations of organic chemistry.

Prerequisite: Chemistry 1212 and credit or registration in Chemistry 2261 for Chemistry 2361; Chemistry 2361 and credit or registration in Chemistry 2262 for Chemistry 2362.

III.	Textbook(s) and other required materials:
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Small Scale Synthesis: Laboratory Textbook of Organic Chemistry, 2002 by Zanger, Wm. C. Brown Co.

Efficiency Data Notebook (#22-221)

IV.	Evaluation/grading (policy and basis; number and frequency of tests and papers; weights of particular tests or papers; etc.):
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Students are given a final grade on completion of this course based on their ability to handle laboratory procedures and on their data notebooks which contain a written account of theory, laboratory procedures used, laboratory data and proper mathematical treatment of the data, answers to questions assigned for certain experiments, and other information pertinent to each experiment carried out in the laboratory. Laboratory data notebooks are picked up and graded during the semester and grades are assigned accordingly.

V.	Policies pertaining to attendance, late work, make-up work, etc.:
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Routine absence from the Laboratory is strictly prohibited and will not be tolerated! In the case of an unavoidable absence (sickness of student, death in the family, etc.), make up work is possible as arranged between the student and the instructor.

VI.	Course objectives:
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Students should

Develop orderliness in laboratory operations.

Become aware of basic safety techniques that must be used in the organic laboratory.

Develop basic laboratory techniques which will be applicable in many medical and scientific fields.

Generate an understanding of the integrity and method that must be involved in reporting laboratory data.

VII. Major instructional objectives:

Students should develop an understanding of important manipulations and procedures encountered in the organic laboratory.

Students should develop laboratory techniques involved in the synthesis, purification, analysis and identification of organic compounds.

VIII. Brief summary of course content by major units of instruction:

Most selections will be made from the following list of procedures and many experiments will be run in microscale.

- A. Introduction to the Organic Laboratory
 - 1. Preparation of Data Book
 - 2. Utilization of Time, Neatness, Organization and Safety in the Laboratory
 - 3. Familiarization with Organic Apparatus
- B. Processes Used to Separate and Purify Organic Compounds
 - 1. Determination of Melting Points
 - 2. Purification of A Solid By Recrystallization
 - 3. Distillation of A Pure Liquid
 - 4. Distillation of A Mixture
 - 5. Thin Layer and Paper Chromatography Separation of Amino Acids
- C. Spectra and Structure
 - 1. Use of UV-Vis Spectra In the Organic Laboratory
 - 2. Interpretation of Proton Magnetic Resonance Spectra
 - 3. Use of Gas Chromatography
 - 4. Interpretation of Infrared Spectra and Its Use In the Organic Laboratory
- D. Chemical and Physical Equilibrium
 - 1. Determination of the Distribution Coefficient of Propionic Acid In Toluene-Water
 - 2. Determination of the Equilibrium Constant For the Esterification of N-Propyl Acetate
 - 3. Synthesis of N-Amyl Acetate Brought To Completion By Dehydration
- E. Nucleophilic Substitution Reactions
 - 1. Preparation of 1-Bromopentane
 - 2. Preparation of T-Amyl Bromide
- F. Electrophilic Addition
 - 1. Synthesis of 2-Bromo-2-Methylbutane
 - 2. Synthesis of Isooctane
 - 3. Synthesis of Cyclohexene
- G. Multi-Step Organic Synthesis and Identification of Compounds
 - 1. Multi-Step Organic Synthesis and Identification of Compounds

- H. Polymers and Polymerization
 - 1. Free Radical Polymerization of Methyl Methacrylate
 - 2. Acid-Catalyzed Polymerization of Methyl Methacrylate
- I. Carbonyl Compounds
 - 1. Synthesis of Isopentyl Acetate (Banana Oil)
 - 2. Synthesis of Trans-Cinnamyl Alcohol
 - 3. Synthesis of Propyl Acetate
- J. Extraction of Active Ingredients From Commercial Products
 - 1. Extraction of Caffeine From Tea
- K. Experiments To Stimulate Interest
 - 1. Synthesis of Aspirin
 - 2. Synthesis of Azo Dyes
- L. Aromatic Compounds
 - 1. Relative Rates of bromination of Substituted Benzenes
 - 2. Synthesis of Methyl Salicylate
- M. Free Radical Reactions
 - 1. Synthesis of Benzopinacolone

IX.	Methods of instruction:
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Students will learn by using hands-on experience in the laboratory..

X.	Brief overview of special instructions:
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None.

XI.	Bibliography of supplemental references and/or source materials:
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References

“Handbook of Chemistry & Physics,” The Chemical Rubber Company (pub) 1980.

“Organic Chemistry,” 6th edition; Morrison & Boyd; Allyn & Bacon, 1992.

Applications of Absorption Spectroscopy of Organic Compounds,” John R. Dyer; Prentice Hall, Inc., Englewood Cliffs, NJ.

ADS	Americans with Disabilities Act) Statement
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Any student who is a “qualified individual with a disability” as defined by Section 504 of the Rehabilitation Act and Title II of the ADA, and who will need accommodated services (e.g., note takers, extended test time, audiotape, tutorials, etc.) for this course must register and request services through the Office of Academic Assistance Programs, S-150.

CSD	CODE OF STUDENT CONDUCT
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LSUE enforces discipline on campus to protect the academic environment of the campus and the health and safety of all members of the University community. To accomplish this objective, the University enforces standards of conduct for its students. Students who violate these standards can be denied membership in the LSUE community through imposition of disciplinary sanctions.

The LSUE Code of Student Conduct can be found on the LSUE website (lsue.edu). Follow the “Current Students” link from the homepage, and then click on “Student Handbook.”